Chapter 3 – PROJECT PLANNING

Purpose

The purpose of Project Planning is to define the exact parameters of a project and ensure that all the pre-requisites for Project Execution and Control are in place. Project Planning builds upon the work performed during Project Initiation.

Successful projects begin with a project plan that is *understood and accepted* by Stakeholders. Putting everything down in writing helps ensure a commitment among Project Team members and between the team and the Stakeholders. Once approved, the Project Plan ensures a consistent understanding of the project, helps to set expectations, and identifies resources necessary to move the project to the next level of detailed planning. Potential problems are identified so that they can be addressed early in the project.

Some of the most important portions of the Project Plan pertain to the project's Cost, Scope, Schedule, and Quality (CSSQ), or the project's quadruple constraints. This information will be refined and supplemented in later project phases as the Project Manager and team become more knowledgeable about the project and its definition. The Project Plan is not a static document; it requires iterative refinement. However as the Project Plan is revised, the integrity of the original documents should be maintained. This will provide an audit trail as to how CSSQ has evolved throughout the project lifecycle.

List of Processes

This phase consists of the following processes:

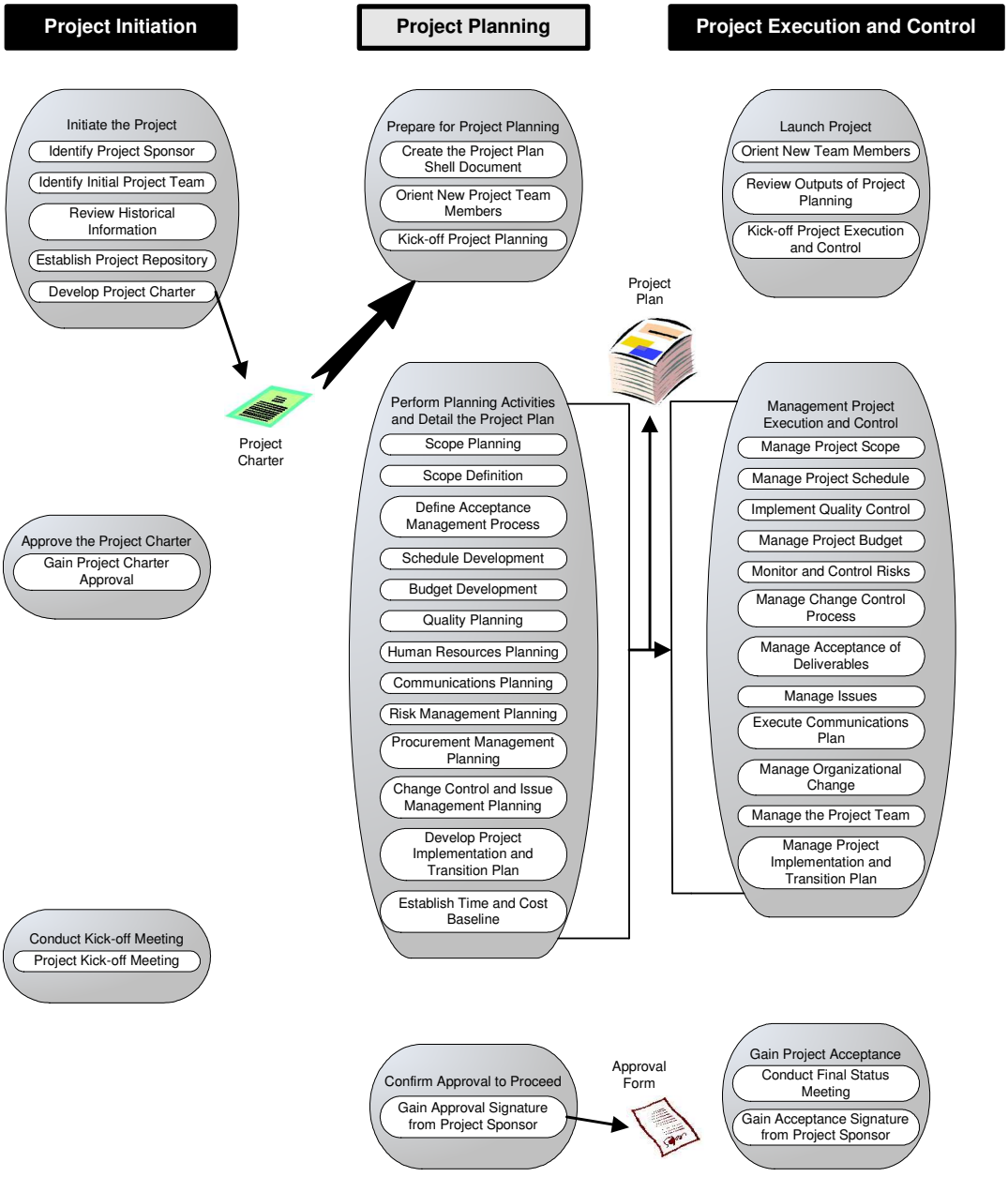
3.1 Prepare for Project Planning, where the Project Manager utilizes available templates and resources to draft the shell of the Project Plan Document. The Project Manager also kicks off the project planning phase with the Project Team.

3.2 Perform Planning Activities and Detail the Project Plan, where the Project Manager and Project Team define the scope, schedule, budget, quality standards, human resources, risks, communications plan, procurement plan, and change control / issue plan for the project.

3.3 Confirm Approval to Proceed to Next Phase, where the Project manager reviews and refines the Business Case, secures any additional resources, and prepares the project plan for review and approval by the Project Sponsor.

The following chart illustrates all of the processes, tasks, and deliverables of this phase in the context of the project management lifecycle.

Figure 3-1 Project Planning in the Project Management Lifecycle



List of Roles

The following roles are involved in carrying out the process of this phase. Descriptions of these roles can be found in the Section I Introduction.

- ❑ Project Manager
- ❑ Project Sponsor
- ❑ Project Team Members
- ❑ Customer
- ❑ Customer Decision-Maker
- ❑ Customer Representatives
- ❑ Performing Organization Management
- ❑ Stakeholders

List of Deliverables

Figure 3-2 below lists all Project Planning tasks and their deliverables (and outcomes). The items in italics are *outcomes*, which are more similar to results versus tangible deliverables.

Figure 3-2 – Project Planning Deliverables

Processes	Tasks	Deliverables and *Outcomes*
Prepare for Project Planning	Create the Project Plan Shell Document	Project Plan Shell Document
	Orient new Project Team members	*Team member buy-in and understanding of Role*
	Review outputs of Project Origination and Initiation and the current Project Status	*Team member buy-in and understanding of Project*
	Kick off Project Planning	Kick off Meeting

Perform Planning Activities and Detail the Project Plan	Scope Planning	Scope Statement
	Scope Definition	Work Breakdown Structure (WBS)

Plan	Define Acceptance Management Process	Deliverable Approval Process
	Schedule Development	Project Schedule
	Budget Development	Budget Estimate Cost Management Plan
	Quality Planning	Quality Management Plan
	Human Resources Planning	Roles and Responsibilities Assignments Staffing Management Plan Organizational Change Management Plan
	Communications Planning	Communications Plan
	Risk Management Planning	Risk Management Log
	Procurement Management Planning	Procurement Management Plan
	Change Control and Issue Management Planning	Change Control and Issue Management Process
	Develop Project Implementation and Transition Plan	Project Implementation and Transition Plan
	Establish Time and Cost Baseline	Time and Cost Baseline
Confirm Approval to Proceed	Gain Approval Signature from Project Sponsor	Accepted Project Plan

3.1 Prepare for Project Planning

Purpose

Project Planning is the most important phase of project management, and in order to ensure success, the Project Manager should complete a few initial activities to **Prepare for Project Planning.**

Roles for this Step
Project Manager
Project Team Members

Tasks

The following tasks are listed in chronological order, however they may generally be completed simultaneously.

3.1.1 Create the Project Plan Shell Document

Tasks for this Step
Orient New Project Team Members
Review Outputs
Kickoff Project Planning

There are various Project Plan templates to choose from; however, the template in this Guidebook located in Appendix II is recommended. By using this particular Project Plan template, agencies will become more consistent in their project management practices, which will enhance communication and the sharing of information among project managers.

 "Don't judge the book by its cover." Hogwash! While we are not advocating style over substance, the format, style, and presentation do mean a lot. During the few minutes that most decision-makers will spend reviewing your project plan you want them to be well disposed towards you, and able to abstract the most information in the least amount of time. A professional-looking document will make a good first impression; a well-organized text that clearly and logically builds your case will solidify that impression.

3.1.2 Orient New Project Team Members

Project Planning activities cannot be completed without active involvement from the Project Team. If team members have been hired or transitioned at this point in the project, a brief orientation meeting or phone call can be very beneficial. As team members continue to be hired, an orientation session should be provided.

The goal of orientation is to enhance the ability of new team members to contribute quickly and positively to the project's desired outcome. If individuals have recently joined the team, it is imperative they have adequate workspace, equipment, security access, and supplies

necessary to perform their required tasks. The Project Manager (or Team Leader, if appropriate) must convey to each new team member, in a one-on-one conversation, what his/her role and responsibilities are related to the project.

In order to streamline interaction among the team, new team members must also become familiar with the roles and responsibilities of all other Project Team members and Stakeholders as soon as possible, and immediately receive copies of all project materials, including any deliverables produced so far. It is usually the Project Manager's responsibility to get new members of the team up to speed as quickly as possible. On large projects, however, if the team is structured with Team Leaders reporting to the Project Manager, it may be more appropriate to assign a Team Leader to "mentor" the new individual.

Information that would be useful to new team members includes:

- ❑ All relevant project information from Project Origination and Initiation
- ❑ Organization charts for the Project Team and Performing Organization
- ❑ Information on project roles and responsibilities
- ❑ General information about the Customer and Performing Organization
- ❑ Logistics (parking policy, work hours, building/office security requirements, user id and password, dress code, location of rest rooms, supplies, photocopier, printer, fax, refreshments, etc.)
- ❑ Project procedures (team member expectations, how and when to report project time and status, sick time and vacation policy)

 Project Managers make use of orientation checklists to ensure that nothing is forgotten during orientation sessions. It's a good idea to retain a package containing a checklist, an orientation meeting agenda, project materials and logistical information. Then, when a new member joins the Project Team, you can just copy its contents. Remember to keep the contents of the package current.

3.1.3 Review Outputs of Project Origination and Initiation and the Current Project Status

Before formally beginning Project Planning, the Business Case and Project Charter should be reviewed with the Project Team. This is a checkpoint process – to recap what has been produced so far and analyze what will most likely be refined as Project Planning takes place. It is especially useful for any new members joining the team during this phase. The review of materials may spark innovative ideas from new team members since they bring different and varied experiences to the project.

3.1.4 Kick Off Project Planning

As described in Project Initiation, a separate kick off meeting can be held to kick off Project Planning. The Project Manager should determine the appropriate attendees and agenda, which is dependent on the size and complexity of the project (refer to Section 2.3 for more information about kick off meetings).

3.2 Perform Planning Activities and Develop the Project Plan

Purpose

The Project Manager and Project Team define the project scope, schedule, budget, quality standards, human resources, risks, communications plan, procurement plan, and change control / issue plan for the project.

Roles for this Step
Project Manager
Project Sponsor
Project Team Members
Customer Representatives
Stakeholders
Performing Organization
Customer Decision-Maker

Performing the Planning activities and developing the Project Plan is an iterative process and the information in the Project Plan is progressively elaborated. An example Project Plan has been provided for you in Appendix II and will be referred to extensively throughout this phase.

Tasks

It is recommended to follow the order of the tasks as presented, however they may be completed simultaneously. The tasks are modeled closely after the Planning Processes recommended in the Project Management Institute's (PMI's) Project Management Body of Knowledge (PMBOK). Refer to Appendix III for a summary of the PMBOK processes. It is highly recommended that you become familiar with the processes and tasks of the PMBOK, which can be ordered from directly from PMI.

Tasks for this Step
Scope Planning
Scope Definition
Define Acceptance Mgmt. Process
Schedule Development
Budget Development
Quality Planning
Human Resources Planning
Communications Planning
Risk Mgmt. Planning
Procurement Planning
Change Control & Issue Mgmt. Planning
Develop Implementation & Transition Plan
Establish Time & Cost Baseline

3.2.1 Scope Planning

The written scope statement is a starting point for project planning and is also the foundation of the project plan (see the Appendix II Project Plan - Scope Management/Project Scope Statement section).


It is important to recognize that during Scope Planning the Project Team focuses on defining the *Project* Scope not the *Product* Scope. To illustrate, the Scope Planning phase in an application software project may include the identification of a requirements definition, an analysis document, and a design document as deliverables, which defines the *Project* Scope. Later in the project as the Project Plan is executed, the requirements definition will be created, which defines the *Product* Scope.

The scope statement should include, either directly or by reference to other documents:

- Project justification - the business need the project will address.
- Project's product – a brief summary of the primary deliverable of the project or the end result of the project (e.g., a product, service, other).
- Project objectives – the quantifiable criteria that must be met for the project to be considered successful.
- Project deliverables – a list of the summary-level deliverables which, when produced and accepted, indicate project completion. For example, the major deliverables for a software development project might include the system code, a user manual, and system documentation. All deliverables will be defined in Scope Definition.

Also included is a list of those items/deliverables that are not in scope for the project.


It may not always be clear what is exactly in scope and out of scope this early in the project. If it is not clear, then the Project Manager needs to identify when the scope will be clearly defined and be intimately involved to ensure that any resulting impacts from the expanded scope are properly managed.

The Project Charter, including the project outcome description, provides necessary information for defining the Project Scope relative to the

business need and benefit for the organization undertaking the project. The scope statement will build on the outcome of the project described in the Project Charter by developing an approach to deliver that result, and by developing additional detailed information about the scope of work to be done. Interviews with other Project Managers who have had experience developing scope statements for similar projects can also be helpful.

"Scope creep" is a major concern of project management. How do you combat it? By pre-empting it with a thorough, accurate, precise, and mutually agreed upon Scope Statement. Avoid words and statements that require judgment or invite interpretation, such as 'improve," "enhance," "better," "more efficient" and "effective." Use numbers, facts, and concrete results. Use quantifiable terms, and provide target values or ranges. Emphasize outcome, not process. "We will work very hard for a long time to improve our response capability and enhance our effectiveness" belongs in a Dilbert cartoon.

While writing the Project Scope, the Project Manager and Customer Representatives must consider the effect the outcome of the project may have on the Performing Organization. The organization must be prepared to support the product once it is transitioned. If implementing the product will result in a change to the way the organization will conduct business, the Project Manager, Project Sponsor, and Customer must anticipate impacts and communicate them proactively to the Consumer community. Sometimes people are resistant to change. Selling the positive aspects of the project and the benefits of its product throughout the project's duration will facilitate acceptance.

If adaptation to the new environment requires new skills, the Project Manager will need to identify appropriate training opportunities and include them in Appendix II Project Plan – Human Resources/Team Development section.

3.2.2 Scope Definition

It is important to remember that refinements to the Project Scope must include discussions and interviews with the Customer and other appropriate Stakeholders. The scope document, therefore, will reflect a mutual agreement between all parties, which is more likely to ensure that buy-in is achieved. A clearly defined Project Scope is critical to the success of a project. Without a clear definition, work already performed may be subject to rework, resulting in lower team productivity.

During Scope Planning, a scope statement was written to document a basic description of the project and its deliverables. Refining the Project Scope breaks deliverables into smaller pieces of work, allowing the scope and the existing Project Budget, Schedule, and quality measurements to be more accurately defined. Where the initial Project Scope statement highlighted the deliverables to be produced in support of the desired project outcome, Scope Definition goes one step further. Using the information learned during Project Initiation, and based upon input gained by communicating regularly with the Customer and other appropriate Stakeholders, the Project Team must refine the Scope statement to clearly define each deliverable – including an exact definition of what will be produced and what will not be produced.

Work Breakdown Structure (WBS)

A Work Breakdown Structure (WBS) is a very useful work product that a Project Manager should create to facilitate the development of a Project Schedule, the next task in Project Planning. A WBS is a graphical representation or outline of the hierarchy of project deliverables and their associated tasks. As opposed to a Project Schedule that is calendar-based, a WBS is deliverable-based, and written in business terms. All tasks depicted are those focused on completion of deliverables. There are no dates or effort estimates in a WBS (see Appendix II Project Plan – Scope Management/ Project Scope Statement).

Using a WBS, Project Team members are better equipped to estimate the level of effort required to complete tasks, and are able to quickly understand how their work fits into the overall project structure.

The first hierarchical level of a WBS usually contains the phases that are specific to the lifecycle of the project being performed. (For example, the first level of the WBS for a software development project would most likely contain System Initiation, System Requirements Analysis, System Design, etc.)

For this reason, a WBS may be reused for other projects with the same lifecycle. Once the first level has been completed, it is broken down into more detailed sub-levels, until eventually all tasks are depicted. When defined to the appropriate level of detail, a WBS is very useful as input to both creating and refining a Project Schedule, including estimating required resources, level of effort, and cost.

Unfortunately, a WBS has not traditionally been used in state government and higher education projects, but it is truly a valuable tool, even for small projects. It forces the Project Team to identify all the expected deliverables of the project, which are the true 'success measures.'

How to develop a WBS

Break each deliverable described in the Project Scope statement down into smaller, more manageable work packages. Repeat this until the work packages are small enough to be defined in the greatest possible detail. Questions to ask to determine if each deliverable has been broken down sufficiently are:

- Can we clearly state what tasks will be done to complete the work and what will NOT be done?
- Can we estimate the time needed to complete the work? Are we able to assign an individual who will be responsible?
- Can we assign a dollar value to the cost of completing the work?

If the answer to any of these questions is "No," that particular work package needs to be further broken down. This "decomposition" exercise assists project staff to better understand and properly document the Project Scope. It also provides information needed for Project Schedule and budget revision.

The WBS is not static - the Project Manager should work with the Project Team during each project lifecycle phase to refine the WBS and use it as input to refining the Project Schedule.

A WBS Dictionary can be helpful to serve as the portion of the Project Plan that includes a description of each deliverable and the activity that will be performed to deliver it.

Refining the Project Scope

As previously mentioned, in most projects once the overall project planning is complete the first major task is to detail the *Product* Scope. This is an appropriate and necessary step. For example, in a building construction project, architectural drawings will be completed; for application software projects, detailed requirements definition and design will be completed.

Refining or *detailing* the Project and Product Scope is important and necessary. This differs from the important step of managing a change in scope.

Documenting how to determine what constitutes a change in scope is a difficult process, but one that is critical to the change control management process as the project is executed. When a change in scope is requested, the Project Manager and Customer must consider the effect the changes may have on the organization, anticipate the impacts, and communicate them proactively to the user community. Later in 3.2.10, 'Define the Change Control Process' is explained.

Communication between the Project Manager and the Customer is crucial in creating a Scope Statement and WBS that clearly reflects what the Customer needs and ensuring a mutual agreement between all parties. If the Project Scope is not accurately described and agreed upon, conflict and rework is almost certain to occur.

3.2.3 Define Acceptance Management Process

As outlined above, a detailed definition of each deliverable that will be produced during the course of the project is created in the Scope Statement, WBS, and WBS Dictionary. A deliverable is considered complete when it has been accepted by the Customer. The Project Plan must be revised to include a definition of the acceptance management process to be used for the project.

It is recommended that "acceptance" be defined as an authorized Customer Decision-Maker's written approval signifying that a deliverable meets expectations. It should be clearly stated that verbal acceptance or acceptance by default is not sufficient. To expedite the acceptance process, it is recommended that one individual per deliverable be given final decision-making authority. This person will be responsible for obtaining feedback from and representing the Customer.

In order for a deliverable to be considered "complete" and "acceptable," it must be measured against pre-determined acceptance criteria. The Project Manager and Customer must agree on the required criteria and the criteria must be documented and included in the Project Plan.

To ensure timely acceptance of deliverables, the Project Manager and Customer Decision-Makers should agree on the format, content and appearance of deliverables before they are produced. This information should be documented and included in the Project Plan. This helps to prepare the Customer to receive deliverables, and to avoid situations where deliverables are rejected because they do not meet Customer

expectations. It is also important for the Project Manager to solicit feedback on deliverables throughout their development. Interim reviews of deliverables will streamline final acceptance.

For an example Deliverable Acceptance Form, refer to Appendix I / Template I – Deliverable Acceptance Form.

In addition to acceptance criteria, the Project Manager and Customer Decision-Maker must agree on, formalize, and document the deliverable acceptance process. Items that must be defined are:

- The number and identity of Customer Representatives who may be required to review deliverables before final approval from the designated individual(s) is sought. A reviewer is usually an expert who is very knowledgeable about the details of the subject matter in the deliverable. In many organizations a Customer Decision-Maker with approval authority will not sign an approval form until a deliverable is thoroughly reviewed by an expert.


Don't be afraid to list the names of several reviewers, as different experts may need to be consulted depending upon the contents of the deliverable being produced.

- The number of business days in which deliverables must be either approved or rejected by the Customer. When establishing an agreement regarding the acceptable number of business days for deliverable review, the Project Manager must consider that the process is iterative and may take more time than initially thought. The amount of time for deliverable acceptance must be included in the Project Schedule, and should be sufficient to include the following activities:
  - Presentation of the deliverable by the Project Manager to the appropriate Customer Representative.
  - Independent review of the deliverable by subject matter expert(s). The more experts, the more time it will take.
  - Independent review of the deliverable by Customer Representatives. Again, the more decision-makers, the more time it will take.
  - Group review sessions, if required.
  - Rework of portions of the deliverable, if required.
  - Resubmission of the deliverable.

- Re-review by the subject matter expert and Customer Representatives.
- Pursuit of approval signature by the Project Manager.

- The number of times a deliverable can be resubmitted to the Customer for approval. It is very important for the Customer to include reason(s) when rejecting the deliverable so the Project Team can address them when resubmitting. If the number of iterations exceeds the number defined in the deliverable acceptance process, further work on the deliverable will require a change request. If the number of iterations becomes unreasonable, the Project Manager should recognize that a bigger problem most likely exists. Setting the maximum number of deliverable revisions and iterations will avoid the situation where a deliverable is "never quite done." Whatever the number of iterations that is agreed upon, the Project Manager must build time to accommodate them into the Project Schedule.
- The escalation process that will be followed if a timely decision on approval or rejection of a deliverable is not met. Will the situation simply become an open issue in the Project Manager's status report? Will executive intervention be required? Or will it be a combination of both?


Maintain an "Acceptance Log" in your Project Status Report to track the status of a deliverable as it goes through iterations of the acceptance process. (See Appendix I / Template H - Project Status Report).

3.2.4 Schedule Development

An accurate, realistic, and complete schedule, rigorously maintained, is essential to the success of a project. Sponsorship of the project must be confirmed or gained during Project Initiation. Having a Project Sponsor, and securing approval early in the project management lifecycle, helps to ensure a commitment to the project.

Using a scheduling tool such as Microsoft Project, perform the following steps:

1) Using the information from the WBS as input, the Project Manager should begin to document effort estimates, roles and dependencies, in preparation for creating a Project Schedule using a project scheduling tool. It may also be helpful to solicit input from past Project Managers, Project Team members and subject matter

experts for insight into past project performance, and to help uncover required activities, dependencies, and levels of effort. Researching and documenting this information first will not only help organize thoughts on paper, but may bring new information to light.

 You probably will not have sufficient information to break each and every component down into excruciating detail, especially if your project spans a long period of time. How can you predict the amount of work required to produce a deliverable that is scheduled to begin two years from now? You can, however, provide an estimate for the entire project at a high level, and should be able to provide accurate detail for the level of work required for the next 3 to 6 months. Describe the entire project to the level of detail you currently understand. Remember, as the project progresses, you will gain the information you need to break components down and provide estimates for the NEXT 3 to 6 months!

A good rule of thumb to follow is the "eighty-hour rule": if the task requires more than two weeks duration to complete, it should be broken down further. This provides a solid basis for estimating level of effort, task planning, assignment of work, and measurement of performance in Project Execution and Control. Use of the "eighty-hour rule" not only greatly facilitates scheduling, but also lays a foundation for accurate tracking of actuals; reporting on progress is reduced to an objective, binary mode: each task (and its deliverable) is either done or not done.

On smaller projects a Project Manager works directly with Project Team members to obtain individual input on effort estimates. On larger projects with multiple components, the Project Manager most likely relies on the input of Team Leaders or individuals who are expert in the specific subject areas. In either case, the Project Manager should gain input from individuals who will actually perform the work or who have performed similar work in the past. This will not only make the effort estimates more accurate, but will help generate excitement and buy-in from the Project Team, as they will feel more a part of the process. Estimating the time to complete an activity is directly influenced by the capabilities of the individual assigned to perform it. The skill level of each person on the team should, therefore, be considered when doing effort estimates. A good practice is to base estimates on an assumed level of skill. This will

allow the Project Manager to adjust his/her estimates up or down when the actual team is in place and the exact skill levels are known. It is imperative that all assumptions used in estimates are documented.

An experienced Project Manager also takes into account absenteeism, meetings, discussions, and staff interaction. A successful schedule builds in reality factors. Specific team members may have ongoing responsibilities occupying a portion of their time, and this must be factored into the schedule. Once effort estimates have been determined for each activity, the Project Schedule must be revised to reflect them. Any revisions or refinements that were made to the Project Scope will directly affect the Project Schedule and must be reviewed and incorporated into the schedule as needed.

2) Dependencies among tasks must be defined and adjusted later as necessary. The Project Manager must recognize:

- **Mandatory dependencies** – those dependencies that are inherent to the type of work being done. They cannot and will not change, no matter how many individuals are working on a task or how many hours are allocated to a task (e.g., the frame of a building cannot be built until the foundation is in place). The Project Manager must recognize mandatory dependencies since they will dictate the way certain pieces of the schedule will need to be structured.
- **Discretionary dependencies** – those dependencies that are defined by the Project Team or Customer that force the Project Manager to schedule tasks in a certain way. For example, the Project Team may be required to use an in-house “best practice” to complete an activity that forces other activities to be completed in a specific sequence.
- **External dependencies** – outside the realm of the project or outside the control of the Project Manager or Customer, these dependencies may direct how portions of the project schedule must be defined. For example, a project activity may be dependent upon an outside vendor delivering a piece of equipment. This is something neither the Project Team nor the Customer can control, but it must be defined and considered when revising the schedule.

Project Schedules must also take into account:

- **Calendars** – the hours and days when project work is allowed, including seasonal restrictions, holidays, labor contract restrictions, vacation or training schedules.
- **Constraints** – completion dates for project deliverables mandated by the Project Sponsor, Customer, or other external factors, which will most often be known early in the project.

Additionally, there may be financial, legal, or Legislative-driven constraints that help dictate a project's timeline.

3) Once the schedule has been revised to include tasks, effort estimates, resources, and dependencies, the Project Manager should study the schedule to determine its critical path. The critical path is the sequence of tasks in the schedule that takes the longest amount of time to complete. If any task on the critical path is delayed, the entire project will be delayed.

   A Project Manager can determine the critical path in a Project Schedule by looking at all tasks that run in parallel and computing the total amount of estimated time to complete them. The path that takes the most time to complete is the critical path. Tasks on the critical path that are completed late will delay the project, unless the Project Manager takes proactive steps to finish subsequent critical tasks ahead of schedule. Because of the important relationship between critical tasks and the project end date, the Project Manager must always be cognizant of the critical path and understand how it is affected when changes are made to the Project Schedule.

 Work with an experienced Project Manager, if you can, to learn tips and techniques for breaking work down, estimating time required to complete certain pieces of work, and refining the Project Schedule. Someone familiar with the process and the scheduling tools can save a more inexperienced Project Manager a lot of time and frustration!

If experienced Project Managers are not available, consider getting effort estimates from multiple sources, comparing results and estimating the duration based on the multiple inputs. Involving the Project Team in the planning process will not only help ensure estimates reflect reality, but will also help gain team buy-in and acceptance.

 And remember…always document any and all assumptions made when deriving estimates or updating the Project Schedule. This "audit trail" will prove invaluable if you need to retrace your steps down the road or must explain why schedule revisions are necessary!

The Project Schedule has a place in the Project Plan, just as the Scope Statement and WBS do. However, since a software application was probably used to develop the Project Schedule, it may need to be added to the Project Plan by copying and pasting it instead of directly entering it into the Project Plan (see Appendix II Project Plan - Time Management/Schedule section).

Refining the Project Schedule

After the Project Plan is approved (including the Project Schedule), when a change in scope is requested, the Project Manager and Customer must consider the effect the changes may have on the organization, anticipate the impacts, and communicate them proactively to the user community (refer to 3.11 Define the Change Control Process).

3.2.5 Cost Estimating and Budget Development

Using available tools, the Project Manager calculates the budget that will be required to complete project activities. The Project Manager should use the project budget to allocate costs to project activities, and all aspects of the project, including the cost of internal and external human resources, equipment, travel, materials and supplies, should be incorporated. The budget should be much more detailed and more accurate than it was during Project Origination.

The Project Manager should use manual or automated tools to generate the Budget Estimate. The budgeting tools may be simple spreadsheets or complex mathematical modeling tools (see Appendix II Project Plan – Cost Management/Budget section). For historical purposes, and to enable the budget to be refined, the Project Manager should always maintain notes on how this budget was derived. Cost estimating checklists help to ensure that all preliminary budgeting information is known and all bases are covered.

The Project Manager must also include in the budget the cost of both the human resources and the equipment and materials required to perform the work. The method by which staff and products will be acquired for the project will directly affect the budgeting process, but is explained in 3.2.9 Procurement Planning section.

 In coming up with the project's budget, many Project Managers fall into either of the two extremes, depending on their temperaments and prior experience: those that are risk averse or have been burned in the past "aim high," inflating the Project Budget to protect against all eventualities; and those that are "green," optimistic, or afraid of rejection "aim low," underestimating the risks and realities. Neither approach, of course, is optimal: both put the whole project at risk, the former by either disqualifying the project in view of limited funds or inviting uninformed wholesale cuts, the latter by setting unrealistic expectations and guaranteeing multiple additional requests for more money.

The best approach is to use organizational experience, your own expertise, and the best advice you can muster, to predict with the greatest possible accuracy what the project will actually cost, and then set up a portion for change orders. A best practice is to calculate change order funds (sometimes called contingency) at 10-20% of project costs. This may be difficult to justify as a single line item so be prepared to defend it by tying it to real activities and risks. **Above all, document the basis of your estimates!**

A number of constraints, financial, political, and organizational, may dictate the methods by which required individuals, equipment, and materials are acquired. The Project Manager needs to be aware of existing resource acquisition policies, guidelines, and procedures. In addition, the preferences of the Performing Organization's management team and/or the Customer Representatives may influence acquisition decisions.

In any case, the strategies defined should satisfy the needs of project Stakeholders. Information from similar past projects can be used to gain an understanding of acquisition strategies; those that were successful and applicable may be considered for implementation on the current project.

As the Budget Estimate is being developed, additional tasks may be identified because the work is being further defined. It may be necessary to update the Project Schedule portion of the Project Plan to include these tasks that were identified during Budget Planning, in case the tasks needed to acquire equipment, materials, and other non-human resources.

Cost Management Plan

The Cost Management Plan is a description of the method for how expenses will be managed, including a preliminary disbursement schedule. For example, the accounting, expense verification, and bill payment procedures should all be explained in the Cost Management Plan. The plan may be formal or informal based on the needs of the project stakeholders (see Appendix II Project Plan – Cost Management /Cost Control section). The Cost Management Plan can describe a description of how cost variances will be managed, but it is recommended that cost variances be managed through the Change Control Process, described in Section 3.11.

3.2.6 Quality Planning

If the Performing Organization has established quality standards, the Project Manager can reference the document containing the quality standards the organization already has in place. In most cases, however, this document does not exist, or the quality standards are not in place. The Project Manager and Customer Representatives must identify and document standards for each project deliverable during Project Initiation. If quality standards are not identified and documented, the Project Manager will have no way to determine if deliverables are being produced to an acceptable quality level.

The Project Scope statement documents what the outcome of the project will be, and will help determine the appropriate quality standards to use. Additional information discovered when defining your project approach (e.g., your materials acquisition strategy) that is above and beyond that contained in the scope statement may aid in identifying quality standards. Performance of a cost/benefit analysis can show whether the benefits of implementing the desired quality standards outweigh the cost of implementing them. Research of past projects that implemented quality standards similar to those that are candidates for the current project can also be helpful.

 The amazing thing about quality standards is that nobody has them available when the project starts, but everybody knows what they were supposed to be when the product is delivered. Do not accept lack of documentation as an excuse to skimp on your homework. On the contrary, dig down through organizational layers to discover what was used in the past (here's another way your historical data research pays off!) and what will be expected in the future. Don't forget to ask your counterparts in other ND state agencies (or the agencies of another state entirely). Also remember to review specific North Dakota standards and regulations that could dictate the quality standards to be measured against for a particular project. If you can't find anything – create it, document it, publicize it, and put it in your Project Status Report and your project repository.

The Project Manager communicates with the Customer to establish and document all quality activities to be implemented during the course of the project to ensure the defined quality standards will be met. This is called quality assurance. Sometimes quality assurance for specific types of deliverables is performed by a separate Quality Assurance Department. A description of all quality activities to be implemented during the course of the project should be included in the Quality Management Plan (see Appendix II Project Plan – Quality Management section).

If an organization does not have the luxury of a Quality Assurance Department, the required activities will need to be performed by designated Project Team members or Customers. Examples of quality assurance activities include:

- Collecting project documentation
- Conducting audits
- Verifying business requirements
- Performing testing

3.2.7 Human Resources Planning

In Human Resources Planning, the Project Manager defines the organization of the Project Team and outlines Stakeholders' roles and responsibilities. All Stakeholders who will be involved in some capacity on the project should be identified. Some may be indirectly involved in an ancillary agency unit or as external vendors or suppliers. Necessary contacts with agencies such as the Office of Management and Budget (OMB), the Office of the State Auditor, and ITD must be included. Members of these agencies are key Stakeholders in many projects and interaction with them should be coordinated and planned.

Define Role and Responsibility Assignments

Project roles and responsibilities can be defined in a matrix or through an organizational chart, or both. A team directory is also an important document to develop (see Appendix II Project Plan – Human Resources/Team Directory section). The minimum information to be included in the team directory is the name of the person, their role/team membership, phone number, and email address. The individual's work hours are also a good attribute to include.

It is also important to ensure that the Project Team performs their roles throughout the project, which may require polite reminders on an occasional basis. Misunderstandings about responsibilities can be avoided by clearly identifying the Project Team roles and responsibilities. This important step cannot be emphasized enough.

 One of the greatest challenges in project management is getting the work done by individuals and business units that do not report to the Project Manager, or even to the Project Manager's entire chain of command. The earlier you can identify whom you need cooperation from, and the more detail you can provide as to the extent and outcome of that cooperation, the better your chances of actually influencing the work done. Make your case early and convincingly, emphasizing how each person can benefit the project.

Define Staffing Management Plan

The Staffing Management Plan describes when and how human resources will be brought onto and taken off of the project team.

Once the Project Manager assesses the needs of the project, financial considerations, time constraints, and individual skills and availability, a

method is defined for acquiring project staff. Depending on the way different organizations relate to one another, strategies used to acquire staff may vary. It is important for the Project Manager to understand the reporting relationships, both formal and informal, among different organizations, technical disciplines, and individuals. Staff may be allocated from within an organization or from an outside source using an established staff procurement procedure. The Project Manager should work with the Project Sponsor to determine staffing options.

The skills required for the project influence the means by which staff members are acquired. If there are limited qualified in-house resources available to staff a project or if a Project Manager has had positive experiences with contract staff, for example, he/she may elect to retain contractors to fill the positions rather than allocating resources from within. If it is determined that it is necessary to recruit staff from outside the Performing Organization, the Project Manager should work with the agency human resource office. The human resource office can assist in the recruitment of qualified staff in accordance with state and federal rules.

If the decision is made to utilize private consultants or contractors, the Project Manager should follow the steps outlined in 3.2.10 - Procurement Planning.

Team Development Planning

To effectively perform the activities required to produce project deliverables, Project Team members must have appropriate levels of skill and knowledge. It is the job of the Project Manager to evaluate the skills of team members and determine whether or not they meet the current and future needs of the project. It is important to remember that there are many kinds of skills. Some are technical and others are “soft skills,” such as management, presentation, and negotiation skills. If it is determined that the team needs training, the Project Manager must include training in the Project Schedule and Project Budget. Some skills can be learned on the job, some can be learned through informal mentoring, some can be learned using computer-based courses, and others may require formal classroom training.

When the training needs and the method of training for each team member have been determined and documented, the Project Manager or Team Leader documents the Training Plan, including a training schedule (see Appendix II Project Plan - Human Resources/Team Development section). Subsequently the Project Schedule must be updated to reflect all added training tasks: when and where training will take place and who

will do it. The target date for completion of each team member's training program should be determined. As training takes place, the Project Manager should update the Training Plan with the names of the trainees and actual training completion dates. Not only will this help the Project Manager measure the success of the Training Plan, but it will also help him/her evaluate team members and prepare staff performance appraisals.

Define Organizational Change Management Plan

When planning the project, the Project Manager and Customer must consider the impact the resulting product will have on the Performing Organization. The organization must be prepared to accept and use the product once it is implemented. The Project Manager needs to define and document a plan to manage the changes to the organization that could occur as a result of implementing the product. This Organizational Change Management Plan becomes part of the Project Plan. Organizational change management must be explicitly planned if it is to be effective (see Appendix II Project Plan - Human Resources/Organizational Change Management section). The items to include as part of an Organizational Change Management Plan are:

- **People:** The plan must consider how the individuals using the product will be affected by its implementation. The organization may initiate reductions or expansions in the workforce, and shift rote clerical activities to automated processing; decision-making power may be distributed further down the chain of command, or even regionally. If specific job duties are being added or removed, staff reductions or increases are anticipated, or the organizational structure itself will change, the plan must identify the steps to be taken. For example, the human resources manager in the Performing Organization must be involved in planning for and performing many of these change management tasks. Labor/management committees, union representatives, and the external agencies involved may all need to be included in planning for such changes, depending on the scope of the changes.
- **Process:** The plan must consider how the product of the project will affect already existing business processes in the Performing Organization. Business processes may take advantage of streamlined workflows to reduce the flow of paper, or technology advances may enable electronic communications to more quickly deliver information. Procedures will need to be redesigned to align with the change. The new procedures may effect changes in the

way the Performing Organization develops, documents, and trains staff, and must be addressed in the Organizational Change Management Plan.

- **Culture:** The plan must consider how severe the project's "culture shock" will be. The Project Manager must determine how much the project will affect the Performing Organization's business strategy, established norms for performance, leadership approach, management style, approach to Customers, use of power, approach to decision making, and the role of the employee. Plans might include performing an assessment of the Performing Organization's "readiness for change," and include development of action plans to increase the organization's readiness and ability to adapt to change through education and training.

In cases where implementing a project will result in a significant change to the way an organization will conduct business, the Project Manager, Customer, and Project Sponsor must be able to anticipate when and how the major impacts will occur, and plan for the specific activities that will adequately prepare the Performing Organization.

3.2.8 Communications Planning

The Communications Plan is a document describing the means by which project communications will occur. The communication process must be bi-directional. The Project Manager must receive input from Project Team members and Stakeholders about their information and communications requirements, determine the best and most cost effective way in which the requirements can be met, and record the information in a formal, approved document. Similarly, the Project Manager must provide details to the team and the Stakeholders regarding the communications he/she expects to receive, and document these requirements in the plan.

The Communications Plan is developed early in the project management lifecycle. It must be reviewed regularly throughout the course of the project and updated as necessary to ensure it remains current and applicable. Part of the Communications Plan describes how communications will be managed.

Depending on the project, communications management may be informal or highly sophisticated. When deciding how to manage communications on a project, a Project Manager solicits information from the Project Team and Stakeholders. The Communications Plan is developed with the following areas to be considered:

- ❑ The information needed may come from different sources. Sometimes it is already documented in hard copy or electronic form, but sometimes it is conveyed during formal meetings, informal gatherings, or simple conversations. The Project Manager must be aware that this information exists and be prepared to convey it using the communications management plan. Some sources of project information. The sources of project information that may require communication including:
  - Status Meetings
  - Status Reports
  - Memos
  - Newsletters
  - Executive Correspondence
  - Meeting Notes
  - Executive Meetings
  - Steering Committee Meetings
- ❑ How often and how quickly information needs to be disseminated.
- ❑ By what means the Project Manager and Stakeholders prefer to receive information (via phone, email, paper).
- ❑ The communication mechanism currently used in the organization, and how it might be leveraged or improved.
- ❑ The effectiveness of communications in past projects and whether specific improvements were recommended.
- ❑ How project information will be collected and stored (including Records Retention requirements) and what procedures will be followed to disseminate the information. If an electronic filing structure will be used, someone must be responsible for its setup and maintenance.
- ❑ Levels of access/security to project information, especially how the North Dakota Open Records Law applies.

- The distribution structure, specifically detailing what, how, and when information will flow to Stakeholders. For Internal Stakeholders, communication channels currently established in the organization should be used. For External Stakeholders, different channels may be required for each discrete Stakeholder group. The team must decide when it should occur, what information should be communicated, and how it should be delivered. The distribution structure for External Stakeholders must take into account how the particular Stakeholder group will be affected by this project.
- The method by which information will be accessed if it is needed between regularly scheduled communications.

The methods and technologies used to communicate information may vary among departments or organizations involved in the project, and by Stakeholders. These differences must be considered when creating a Communications Plan. For example, will all departments have access to email, or will exceptions need to be made? Are there any other considerations that may affect or limit communication? For example, there may be regulatory or contractual obligations that will affect the means by which communication can take place.

 Conducting a status meeting regularly with your Customer is a great habit to adopt. Some items to discuss during the meeting include accomplishments, progress against schedules, work to be done, and any open issues that need resolution. If you plan to discuss a certain subject area during the meeting, don't be afraid to invite members of the Project Team with expertise in that area. It's also not a bad idea to invite other Stakeholders who have something constructive to contribute. Use the status report to drive the meeting discussion points (See Appendix I / Template H - Project Status Report). Remember, there can never be TOO MUCH communication!

As the project progresses certain events may occur that alter the way information is accessed or change communication requirements. For example, a department may move to a new building, allowing Project Team Members access to email for the first time. Or a change in personnel may dictate a change in the frequency of communications. During Project Planning and subsequent phases, the Project Manager should review the Communications Plan with the Project Team to be sure it is still viable. If it is determined that any portion of the plan is no longer applicable, the Project Manager must develop appropriate revisions to the plan.


Sometimes communications can break down. To try to avoid these disconnects, you should: 1) Be as concise and clear as possible in both written and verbal messages and 2) Solicit feedback to determine if your messages have been received by the appropriate parties and interpreted correctly. When there are problems, try to learn from them so that you can do better in the future.

3.2.9 Risk Management Planning

The goals of Risk Management are to predict the likelihood that a risk will occur, to quantify its potential impact on the project, and to develop plans for risk management.

Identify Risks

The Project Manager solicits input from the Project Team, Project Sponsor, and from Customer Representatives, who try to anticipate any possible events, obstacles, or issues that may produce unplanned outcomes during the course of the project. Risks to both internal and external aspects of the project should be assessed. Internal risks are events the Project Team can directly control, while external risks happen outside the direct influence of the Project Team (e.g., legislative action).

The list of risks created is entered into a Risk Management Log (see Appendix II Project Plan - Risk Management/Risk Management Plan section) and supplemented throughout the Project Planning Phase by any additional risks identified. Through Risk Analysis, information is added to describe the risk probability, impact, and response.

Reviewing the following areas can be helpful in identifying risks:

- ❑ Culture of the Performing Organization
- ❑ Anticipated impact on the Performing Organization of the resulting product or service
- ❑ The level to which the end result is defined (the more complete the definition, the lower the possibility of risk)
- ❑ Technology used on the project (proven vs. new)
- ❑ Relationships among team members
- ❑ Impact on work units/customers
- ❑ Known constraints
- ❑ Resources

Documentation associated with the Project can also be used to help identify risks. Some examples are:

- The Project Scope Statement and WBS may uncover previously unidentified areas of concern (again, the more complete the scope definition, the lower the possibility of risk);
- The Project Schedule may produce extremely aggressive or unrealistic scheduling;
- Preliminary staffing requirements may be problematic if required resources have limited availability or unique skills that would be hard to find and/or replace should they leave the project.
- The Business Case and Project Charter may include possible areas of risk.

Historical information can be extremely helpful in determining potential project risks. Data and documentation from previous projects, or interviews with team members or other subject matter experts from past projects provide excellent insight into potential risk areas and ways to avoid or mitigate them.

If the organization has a list of common project risks, it can be useful to ensure that the Project Manager has considered all potential risk elements in the current list. The Project Manager should update the organization's list as necessary based on the results of the current project.

Risk Analysis

The Project Manager and Project Team members evaluate each risk in terms of the likelihood of its occurrence and the magnitude of its impact. Both criteria should be quantified using a five-point scale: very high, high, medium, low and very low. These measurements are used as input into the Risk Management Log for further analysis when determining how the risk threatens the project.

There are many tools available to quantify risks. The Risk Management Log presented here has been selected for its simplicity and ease of use. More sophisticated tools may be necessary for large-scale high-risk projects.

A factor to be considered when quantifying risks is stakeholder risk tolerance, the threshold to which the Performing Organization will assume risk, which is dependent on its attitude toward and motivation for the project. For example, an agency may view a 15% chance of a project overrun as acceptable since the cost benefit for the organization to do

the project far outweighs this factor. The Project Manager's understanding of the organization's strategic direction and the motivation of both the Project Sponsor and the Customer will help determine the level of risk tolerance for the project.

Risk Response Planning

Next, the approaches for responding to each risk are developed and are added to the Risk Management Log. Actions can be taken to avoid, mitigate or accept each risk, depending upon the probability of its occurrence and the magnitude of its impact on the project. If a risk event can be anticipated, there should be sufficient opportunity to weigh consequences and develop actions to minimize its negative impacts or maximize its positive ones.

The Project Manager evaluates the results of the previous task to determine an appropriate response for each risk: avoidance, mitigation or acceptance. Each case will require a decision by the Project Team. The Project Manager is then responsible for communicating the steps necessary to manage the risk and following up with team members to ensure those steps are taken.

Identifying the risk is good; but planning a wise course of action around it is infinitely better. Be aware that by addressing one risk, you may be introducing another. For example: you identified a risk that your cost estimates may be off by as much as 15%. Your mitigation plan is to request a 20% increase in funds to cover the increased cost. You may have introduced a new risk, because a red flag may be raised, inviting an audit.

Since each risk may have more than one impact, the risk responses must describe the actions to be taken to avoid, mitigate or accept each risk impact, including contingency plans. It should also specify the individuals responsible for the mitigation actions or contingency plan execution. Attention should be directed to those risks most likely to occur, with the greatest impact on the outcome of the project. On the other hand, a conscious decision can also be made by the Project Team to accept or ignore certain risks. These decisions must be documented as part of the Risk Management Plan for subsequent re-evaluations.

Some commonly employed risk mitigation strategies may include:

- **Procurement** – some risks can be mitigated through procurement. For example, if the project requires staff with particular skills it may

be advisable to retain resources through an outside organization. Unfortunately, this may introduce other risk factors such as the resource's unfamiliarity with the agency.

- **Resource Management** – it may be beneficial to leverage a lead resource that has already worked on a project with similar characteristics by assigning that resource as a mentor to more junior team members. This will mitigate delays in the schedule due to the learning curve of more junior resources.
- **Use of Best Practices/Lessons Learned** – some organizations already have repositories of project specific or business function best practices, which may help you to prepare for unanticipated risks. Taking advantage of other project best practices, whether they are process or tool based, will help to mitigate risk. Implementing processes that have worked successfully on other projects will save time.

Last, and most important, the Risk Management Log must specify the individuals responsible for the mitigation actions, the timing of the actions to be implemented, and the expected results of the actions.

In addition to quantifying risk probability and impact and formulating risk responses, the risk assessment process facilitates establishment of an agreement for the Project Team, Project Sponsor and Customer Representatives to collaborate in managing risks as they arise during the project.

Risk Management Plan

The frequency with which the Risk Management Log will be monitored, reviewed and maintained, and the method of communicating progress of risk mitigation actions, must be incorporated into a Risk Management Plan (see Appendix II Project Plan - Risk Management/Risk Management Plan section). For example, the Risk Management Log should be reviewed at every status meeting, and updated with each change to the project.

When updating the Risk Management Log, maintain the original. Each revision should be kept to provide an audit trail demonstrating how the risks evolved throughout the project management lifecycle.

Throughout Project Planning and during Project Execution and Control, additional risk variables may be identified. Further refinement of the Project Scope may uncover areas of concern that were previously unknown. A more detailed schedule may introduce a new level of complexity and interdependencies to the project, possibly producing

more risk. More accurately defined staffing requirements may call for resources with unique skills whose availability may be diminishing. These are only a few examples of how risks in a project evolve over time, with the focus shifting from one risk source to another.

The Risk Management Plan should document how the Project Manager will verify the updated list of risks with the Project Team and Project Sponsor. Regular solicitation of input from experienced Project Team members and/or the Project Sponsor to uncover potential areas of risk and to help you identify what types of risks the Project Sponsor views as relevant. Jointly identifying and updating the risk variables for a project results in the sharing of risk awareness by all parties involved.

3.2.11 Procurement Planning

As the project is defined in each of the Planning Processes described throughout the previous pages, various resources that require procurement may be identified.

In State Government, when human resources, equipment, materials, or other non-human resources must be obtained, the Project Manager should contact the agency contract management office for assistance regarding state contract vendors, and procurement guidelines, as established by the State Procurement Office http://www.state.nd.us/csd/spo/. If technology or technology management services must be obtained, the technology procurement guidelines must be followed, which can be found at http://www.state.nd.us/itd/planning/tech.html.

In Higher Education, the established State Board of Higher Education (SBHE) and the North Dakota University System (NDUS) policies/procedures must be followed. Questions regarding procurement of non-human resources should be directed to your campus Purchasing Department. Questions regarding procurement of human resources should be directed to your campus Human Resources or Personnel Department.

Developing a Procurement Management Plan (see Appendix II Project Plan – Procurement Management Plan section) involves documenting

the above-mentioned steps and the procurement process to be used, in order to ensure the method is defined and reusable.

Regardless of how staff and products are acquired for the project, the Project Manager must add the estimated cost of all resources to the Budget Estimate.

3.2.12 Change Control and Issue Management Planning

Define Change Control Process

Every aspect of the project defined during Project Initiation and Planning has the potential to change. In fact, change should be expected to occur throughout every project phase; but if an effective change control process is defined and agreed upon during Project Planning, any change should be able to be handled without negative effect on the project outcome.

Project change is not defined simply as a change to the cost, end date, or Project Scope. Change should be defined as ANY adjustment to ANY aspect of the Project Plan or to ANY already approved deliverable(s). This includes anything formally documented in the Project Charter, Project Plan, or any deliverable produced during the course of the project.

The Project Manager and Customer Decision-Maker must agree on the change control process, which then must be formalized, documented, and included as a section in the Project Plan. Items that must be defined are:

- ❑ Identification of the individual(s) authorized to request a change.
- ❑ Identification of the person or group responsible for analyzing the request to understand its impact on the Project Cost, Scope, Schedule, and Quality, as well as the Customer Representative who has authority to approve the request. The Project Manager should never give the Project Team the go-ahead to begin work until a change request form has been signed by the Customer Decision-Maker. It should be noted that the impact to the Project Schedule must take into account time spent to analyze the change request.

 For changes that may have a more significant impact on the budget or schedule, the Project Sponsor (and/or Project Steering Committee) should be the ultimate approver of a change request. This presents a broader view of the issues and the consequences of the decisions.

- ❑ The timeframe (number of business days) allowed for a change request to be approved or rejected by the Customer. It is important to document the fact that approval or rejection by default is not permitted, so acceptance or rejection cannot be assumed if there is no response to a submitted change request.
- ❑ The process to follow if no timely decision on approval or rejection of a change request is made. The Project Manager should follow up with the person to whom it was submitted to determine why the change request has not been processed. If its identification as a change is disputed, the situation should become an open issue in the Project Manager's status report. The Project Manager should attempt to negotiate a compromise, but, if there is no resolution, executive intervention may be required.
- ❑ The percentage of the overall Project Budget that has been reserved for project changes. It is important to predetermine a change budget to prevent project work from being interrupted while funds are secured to do the work.

 As explained in the Budget Development Section, it is recommended to set up a change budget – (10 to 20% of the project total) for unforeseen eventualities. Alternatively, does your Project Sponsor enjoy "going to the well" time and time again to ask for additional funds? Do you enjoy writing justifications and groveling repeatedly? Enough said.

Define Issue Management and Escalation Process

Issue management involves capturing, reporting, escalating, tracking, and resolving problems that occur as a project progresses. A process must be in place to manage issues, since they can potentially result in the need for change control and can become major problems if not addressed (see Appendix II Project Plan – Risk Management/Issue Management Plan section).

The following items must be agreed upon between the Project Manager and Project Sponsor and must be documented and included as a section of the Project Plan:

- ❑ How issues will be captured and tracked – many Project Managers make use of some type of repository to ensure that issues are not lost. This repository may be either electronic or manual, depending upon the needs and size of the project. At a minimum, an issue

repository must contain: the name of the person who identified the issue (i.e. contact person), a description of the issue, its potential impact, the date it is recorded, the status of the issue (open/closed), its anticipated closure date, its priority, the name of the person responsible for resolving it or getting it resolved, and resolution comments. The due date for closure must be a specific date (i.e., the date cannot be "ASAP"). The responsible party must be a specific individual, not a functional group (i.e., an issue should not be assigned to the "IT Department").

As progress occurs on the resolution of an issue, the Project Manager should update the issue repository to reflect what has occurred. An issue log (whether electronic or paper-based) should be updated regularly, possibly as often as daily depending upon the needs of the project and issue resolution progress (See Appendix I / Template H - Project Status Report).

- How issues will be prioritized – the characteristics about the issue that will determine whether its resolution will be a high, medium or low priority. The impacts to the schedule, level of effort, or cost are usually the factors that determine the priority.
- How and when issues will be escalated for resolution – whether they will be escalated if they are not resolved in a given period of time or when a delivery date is missed or only when the Project Budget is severely affected. Whatever the decision, details of the escalation process need to be clearly stated. It is also vital to document to whom issues will be escalated.

3.2.13 Develop Project Implementation and Transition Plan

The Project Manager must formulate and document a plan for implementing or deploying the product of the project and for transitioning the responsibility for the outcome of the project from the Project Team to the Performing Organization. The Transition Plan must include all the necessary activities to perform and procedures to follow to ensure a smooth and satisfactory hand-off (see Appendix II Project Plan – Time Management/Implementation and Transition Plan section).

When planning the implementation and transition, the Project Team must consider the impact the resulting product will have on the Performing Organization and Consumers. The Consumers must be prepared to use the product and the Performing Organization must be prepared to support it.

The Project Manager needs to define and document a plan to implement the product, and should consider:

- What needs to be done to ensure the organization will be ready to receive the product. These steps may include acquiring the necessary physical space, installing appropriate software, obtaining the appropriate building permits, etc.
- How and when the Customer will test and accept the product and confirm and authorize its implementation.
- The steps to be taken to ensure Consumers will be ready to use the product once it is transitioned. These steps must be coordinated with the Organizational Change Management Plan, and will include training and orientation on the use of the product. They also may include plans for training Customers or Consumers as trainers for the future. The plan must define which of the Customer(s) require training, the level of training necessary, who will provide the training, and when it will occur.
- The appropriate strategy for implementing the product into the Performing Organization, given the specific Consumers and Customers. For example – phased by location, phased by specific product functionality, "big bang," etc.

The Project Manager should define and document a plan to transition the ongoing support of the product to the Performing Organization and should consider:

- The people from both the Project Team and the Performing Organization who need to be involved in the transition, and their associated roles and responsibilities. Examples include Customers, Consumers, and members of other specific support units within the Performing Organization.
- The steps that should be taken to ensure that the appropriate individuals are ready to support the product once it has been implemented and is in use. This may include negotiating with various internal organizations to determine the appropriate timing of the transition of responsibility, assigning specific organizations and individuals to support the specific products, and providing necessary training.
- The relationship between the implementation plan and the transition plan. The Project Team and the Performing Organization must agree on the point in implementation at which the Performing

Organization takes responsibility for production problems, "help" or trouble calls, and for resolving the problems.

- ❑ The Performing Organization's expectations regarding any documentation that is required as part of transition.

 Many otherwise successful projects fail due to a lack of transition planning. Don't let this happen to you! Ask 'do we have the resources to support the implemented product?' If the answer is no, the resources required to support the product should be identified and the cost/benefit analysis of the project should be revisited.

3.2.14 Establish Time and Cost Baseline

A time and cost baseline is a project "snapshot in time," taken at the conclusion of Project Planning, against which performance on the project is measured. It is one way the Project Manager can determine if the project is on track. Using the electronic Project Schedule, a baseline is captured or 'set.'

Once the baseline version is approved during the next process 'Confirm Approval to Proceed,' the Project Manager should revise it only if a change control is approved that results in a change to the schedule. The time and cost baseline becomes part of the Project Plan. As the project progresses, subsequent schedules may be compared to the baseline version to track project performance.

 If you revise the baseline as a result of change control, be sure to save the original baseline for historical purposes.

3.3 Confirm Approval to Proceed

Purpose

The purpose of **Confirm Approval to Proceed to Next Phase** is to formally acknowledge that planning activities have been completed and that all deliverables produced during Project Planning have been completed, reviewed, accepted, and approved by the Project Sponsor. Formal acceptance and approval also signify that the project can continue into the next phase, Project Execution and Control.

Roles for this Step

Project Manager

Project Sponsor

Performing Organization

The acceptance and approval process is ongoing. As changes are made during Project Planning, the Project Manager should be in constant communication with the Project Sponsor. Keeping the lines of communication open will avoid a situation where a Project Sponsor is surprised by a deliverable or receives something he/she does not anticipate.

In addition, the Project Manager should review the interim deliverables or work products for each process with the appropriate Customer Decision-Maker upon their completion and gain approval before moving on to the next process. These interim acceptances should streamline the final acceptance process.

Tasks

3.3.1 Prepare Formal Acceptance Package

The Project Manager should schedule a meeting to discuss and gain agreement to approve the Project Plan, which could include the need to secure any additional Project Execution and Control resources.

Tasks for this Step

Prepare Formal Acceptance Package

Gain Approval Signature from Project Sponsor

Attendees should always include the Project Sponsor and the members of Performing Organization Management whose resources will be affected. Attendees may also include members of other agencies who are able to provide resources that will add value during Project Execution and Control.

In addition to reviewing the Project Plan, the Business Case should be reviewed because more information is now known about the project and the Business Case may need to be refined.

The Project Manager should organize these deliverables into a cohesive deliverable package and prepare a formal approval form.

 **Additional Project Planning Requirements for Large Projects:** Pursuant to STD009-98, large information technology projects must submit a copy of the Project Plan to the ITD Policy and Planning Division. For more information, refer to the ITD web site at http://www.state.nd.us/itd/planning/lar-pro-rep.html.

3.3.2 Gain Approval Signature from Project Sponsor

During the meeting, the Project Plan is approved and resources are formally secured by gaining the signatures of the appropriate Performing Organization managers on the Project Deliverable Approval Form (see Appendix I / Template I - Deliverable Acceptance Form).

At this point in time, the Project Sponsor may also decide to terminate the project. This decision may be based upon factors outside the control of the Project Manager (i.e., the organization may have new priorities that are in direct conflict with the project or increased risk may have been introduced to the project.) Or it is possible that, having done more detailed planning, the costs of doing the work are greater than initially estimated and outweigh any project benefits. Realistically, termination of a project could happen at any point during the project. The Project Manager must be comfortable and confident enough to approach the Project Sponsor at any time during the course of the project if he/she feels the project has reached a point where termination is the best possible solution.

Project Planning End-of-Phase Checklist

How To Use - Use this checklist throughout Project Planning to help ensure that all requirements of the phase are met. As each item is completed, indicate its completion date. Use the Comments column to add information that may be helpful to you as you proceed through the project. If you elect NOT to complete an item on the checklist, indicate the reason and describe how the objectives of that item are otherwise being met.

Figure 3-3 Project Planning End-of-Phase Checklist

Item Description	Completion Date	Comments and/or Reason for Not Completing
Prepare for Project Planning		
Ensure team members have whatever is required to perform their tasks		
Mentor or assign Team Leader to mentor new team members		
Hold orientation sessions		
Conduct kick-off meeting		
Update the project repository with all project correspondence		
Perform Planning Activities and Develop the Project Plan		
Write the Project Scope Statement		
Refine the Project Scope statement, breaking deliverables into smaller pieces of work		
Clearly define each deliverable		
Compile detailed descriptions of all work products and deliverables		
Write description of scope change management		

Item Description	Completion Date	Comments and/or Reason for Not Completing
Define and document acceptance management process		
Create Project Schedule		
Estimate effort and cost for each task and enter into schedule		
Define dependencies among tasks		
Calculate the project budget estimate		
Develop staff and materials acquisition plans		
Estimate costs of all resources		
Initiate/address procurement		
Review quality standards and revise as necessary		
Identify organization's existing quality standards, if any		
Identify and document quality standards for each deliverable		
Risk Management Planning		
Solicit input on risk identification from Project Team, Project Sponsor, and Customer Representatives		
Analyze scope, charter, historical information		
List all risks identified		
Review identified risks with Project Team and Project Sponsor		
Create Risk Management Log		
Assess each risk (low/med/high)		

Item Description	Completion Date	Comments and/or Reason for Not Completing
Estimate timing of impact on project		
Determine mitigation actions		
Incorporate actions in Project Schedule and Project Plan		
Procurement Planning		
Human Resources Planning		
Create list of roles and skills required		
Identify Internal and External Stakeholders		
Outline Stakeholders' roles and responsibilities		
Evaluate team member skills and identify training needs		
Establish Training Plan		
Define and document Organizational Change Management Plan		
Write Communications Plan		
Understand Stakeholder communication requirements		
Define and document change control process		
Define and document issue management and escalation process		
Capture baseline Project Schedule (effort and cost)		
Define and document Implementation and Transition Plan		
Confirm Approval to Proceed to Next Phase		
Review Business Case and refine, if necessary		

Item Description	Completion Date	Comments and/or Reason for Not Completing
Review all deliverables from Project Planning		
Organize deliverables into package		
Prepare formal approval form		
Present acceptance package to Project Sponsor for signature		
Resolve any issues		
Update package as needed to resubmit to Project Sponsor for signature		
Gain Approval to Proceed		
Update Lessons Learned		

Measurements for Success

The ultimate measurement of success for Project Planning is that successful Project Execution follows, or a decision to stop the project as, once again, the organization may be best served by deciding that the project should not continue.

Nevertheless, the Project Manager can still assess how successfully the project is proceeding by utilizing the measurement criteria outlined below as it proceeds through Planning. More than one "No" answer indicates a serious risk to the continued success of your project.

Figure 3-4 - Checklist for Measuring the Success of Project Planning

Process	Measurements of Success	Yes	No
Prepare for Project Planning	Do you have a proven Project Plan template from which to develop your Project Plan?		
Perform Planning Activities and Develop the Project Plan	Has your Scope Statement been reviewed and accepted by Customer Representatives who will benefit from your project?		
	Do your Customers understand the pre-determined acceptance criteria for all deliverables?		
	In your Project Schedule, do you know if the effort allocated to various project phases correlate to industry-accepted norms?		
	Is your Project Schedule defined according to the 80-hour Rule?		
	Did you review the impact your project costs will have on upcoming fiscal year budgets with the Finance office?		
	Have your staff and materials acquisition plans been reviewed with the Performing Organization who will be paying for the staff and products being acquired?		
	Have the supervisors of all resources assigned to tasks on your project agreed to release those resources on the dates your project is expecting them?		
	Do your Customers understand the pre-determined acceptance criteria for all deliverables?		
	Do your team members have complementary skill sets, with no apparent gaps as per project approach?		

Process	Measurements of Success	Yes	No
	If not, have you obtained authorization to provide them with necessary and timely training?		
	Have the expenditures associated with your team Training Plan been approved?		
	Has your Quality Management Plan been approved by the member of your organization responsible for quality assurance?		
	Are your Internal and External Stakeholders satisfied with the frequency and content of communications you are providing (consistent with your Communications Plan) as evidenced by a lack of complaints?		
	Have you proactively sought to gauge Stakeholders' Satisfaction level?		
	Has the Project Sponsor reviewed your list of risks?		
	Does your Project Sponsor agree with your risk prioritization?		
	Do the other decision-makers agree with your risk mitigation actions?		
	Do your Customers and Stakeholders agree with your definition of what constitutes a change?		
	Have you verified that the folks responsible for signing off on change control items and deliverable approval forms actually have authority, and are willing, to approve the items of expected magnitude and type?		
	Have the persons you identified as having authority for issue escalation agreed to serve in that capacity?		
	Is your Project Sponsor sure that your organization will be ready to implement the product or service that your project will develop?		
	Have you provided sufficient information in your Project Plan to allow the Project Sponsor to take the necessary action of approval?		
Confirm Approval to Proceed	Do you have an approval form signed by your to Next Phase Project Sponsor authorizing you to proceed to Project Execution and Control, or halting the project?		

Phase Risks / Ways to Avoid Pitfalls

Project Planning may afford the Project Manager the last opportunity to plan for the successes – and prepare for the disasters – that may follow. Once the Project Plan has been accepted (read: set in stone and put aside) the events will unfold in their own due course: following the plan (more or less), or arising spontaneously, haphazardly and perniciously to jeopardize it.

Your mission for this phase, should you choose to accept it, is to position the project so as to enable the former and impede the latter, or your plan will self-destruct in no time flat. What are some of the key elements of Project Planning that require the most attention? The following table identifies processes and tasks that are highlighted in this section.

Figure 3-5 Importance of Project Planning Process - Avoiding Pitfalls

Process	Task	Why is it Important?
Prepare for Project Planning	Orient new team members	Choose your Impossible Mission Force wisely – they must be fully prepared and totally committed
Perform Project Planning Activities and Develop the Project Plan	Refine Project Schedule	The more impossible the mission, the greater the need for precise planning
	Risk Management Planning	It matters not what you know about the ambush, but what you will do to avoid, or overcome it
	Define Change Control Process	Who has the authority to change mission parameters? When and how?
	Define Issue Escalation and Management Process	What is your "exit strategy?"
Confirm Approval to Proceed	Gain Approval from Project Sponsor	Approval is required before the mission is executed

PITFALL #1 – YOU HAVE THE WRONG TEAM

Before you get to play the leader, you first need to form your team. As a Project Manager appointed to a project, you probably think that you have very little latitude in selecting your team. Most likely, you are right – but it never hurts to try! And considering that these are the people who will define your success (flashback: what is the definition of "management?" – answer, getting work done through others) you should certainly make every effort to surround yourself with folks who not only have the right alphabet soup on their resumes, but also have the "right stuff" to form a high-performing team.

It is a hard, and maybe even a counter-intuitive lesson to learn, that the right combination of character and intelligence – or, in other terms, of attitude and ability to learn – is far more important than a particular type or even length of experience. Here are some pointers for selecting – and weeding out – team member candidates.

1. When selecting new team members, the first attribute to determine is aptitude. Whatever the technology or tools they will have to use, do they have a "knack," a natural inclination for it? Do they take to it, do they do it on their own time, do they innately like it? Have they chosen – and succeeded at it – in the past? No degree, no level of erudition or IQ, guarantees that a person has an aptitude for a given job. And if they don't – beware. No matter how hard they work, or how much they study – they will still not produce the same results as someone with an aptitude who seems to knock off tasks left and right with nary an effort.

2. The second desirable attribute is work ethic. Whatever your expectations are of the level of effort required on the project, you must be able to answer an emphatic "Yes!" to these two questions about each new team member: (1) in the normal course of events, will the person put in an honest day's work? and (2) when the circumstances require it, will the person do whatever it takes to get the job done? Both questions are equally important, and both demand an affirmative answer.

3. The third requisite attribute is versatility. Despite what you forecast on your schedule, and what you outline in roles and responsibilities, your team members will have to either substitute for one another, or perform some tasks you cannot currently anticipate. The team will need to be able to adapt to different circumstances and to learn new skills. Consequently, people who have a track record of performing well in disparate environments are certainly preferable over fragile personalities who are thrown off their pace for a week when a time sheet format changes, or who cannot function unless they have the right view out their window. Likewise, folks who have a track record of learning new skills and techniques, especially on

their own, are vastly preferable over the types who must attend weeklong vendor seminars (preferably in tropical locales) before they can be persuaded to learn anything new.

4. The fourth, and final, attribute to look for (and look out for!) is temperament (or disposition, or attitude, or character – whatever you want to call it). It makes a difference between enjoying camaraderie and synergism of a close-knit team and dreading coming to work in the morning.

Another way to "stack your deck" is to make sure you have the right combination of "types" for your team. Every team can benefit from one or more of the following:

- An "Eager Beaver." This is a person who typically has little experience with whatever technology your project is employing, but more than makes up for it in sheer persistence. You need these folks to carry the load.
- A "Guru." This is someone who knows everything there is to know about the subject, and is willing to teach anyone everything he or she knows; hopefully, the subject is what your team will actually need the most of. You need these folks to provide expertise and to solve real problems.
- A "Mother Hen." Male or female, this is a person who will remember everyone's birthday, take up collections for baby showers, and organize extracurricular team activities. Hopefully, they will have time left to do some actual work. You need these folks to maintain morale, provide team cohesion and balance the professional with the personal.
- A "Gadfly." Only in the sense of "acting as a constructively provocative stimulus" (The American Heritage Dictionary of the English Language, Houghton Mifflin), this person is indispensable in providing creative new ideas and challenging the status quo – when improvement is warranted. You need these folks to help the team come up with creative solutions, and to continuously improve the process.
- A "Leader." Finally, in addition to yourself, you need senior people on your team to inspire the other team members to accomplish their goals, as well as to hold them accountable when they don't.

PITFALL #2 – YOU PLAN FOR SUCCESS. ONLY.

Let's say you are going on vacation, driving through an unfamiliar area. As you are tuning the radio to a local station, you hear that there's a huge tie-up by Exit 11 of the route you're traveling on. You look up and

see that you just passed Exit 10. What good is knowing about the obstacle at that point?

Would hearing the news at Exit 9 or earlier make a difference? Only if you had a local map and could plot your way around the obstruction.

But what if you knew, when you were first planning your trip, that Exit 11 on this highway was under construction? Would you not lay your course differently to avoid the delay?

So it is with risk mitigation. Identifying the risk is good; but planning a wise course of action around it is infinitely better. Planning mitigation actions ahead of time also removes the pressure of the moment, and allows you to clearly see the forest without bumping into the trees.

However, planning ahead for an eventuality that may or may not happen does not quite sharpen the mind with the same clarity that an immediate crisis does. It is not easy to be honest and tough, to avoid pat answers and rosy scenarios.

That's why it is useful to prioritize the risks first (using the Risk Management Log) and start working on the ones that have the greatest chance of sinking the project. The anticipation of a disaster ought to concentrate your mind on a realistic solution, and allow you to plot the best course of action around major obstacles.

PITFALL #3 – YOU ARE OVERCOME BY CHANGE

Some projects resemble the Blob from the eponymous 50's movie (and its unnecessary 80's remake): they absorb any obstacle in their paths, growing larger and less well defined all the time until someone finally puts them out of their misery (usually, by freezing the funds). Unfortunately, a lot of people get hurt in the debacle.

One way to avoid this fate is to know what the project is – and is not – and keep it that way. A good Project Plan is certainly a good start. But either according to the risk mitigation planning you did, or in totally new and unpredictable ways, one thing you can definitely count on during the course of the project: CHANGE WILL HAPPEN. And whether you are prepared for it or not, you will have to take actions that deviate from your Project Plan. However, by the very nature of the dutiful signoffs you so diligently pursued, you have no authority to undertake actions that deviate from your Project Plan!

That's where the Change Control Process comes in handy. You will need to know:

1. What constitutes a change
2. How to respond when a change occurs

3. Who can approve the new plan of action

What constitutes a change? Simply put – Anything that in any way deviates from the totality of your Project Plan as the Project Sponsor accepted it. If your project approach is not working – for whatever reason – and you need to modify it – it's a change. If your Project Scope changes (beware the scope creep!) – it's a change. If your Project Schedule needs to be modified – either up or down! – it's a change. If the quality standards in the agency change – it's a change. If the budget gets cut – it's a change. If you adapt a different communications mechanism because it works better – it's a change. If your Project Team composition changes – it's a change.

Of course, not all changes require the same level of response. It would be ludicrous to initiate a formal change control process and demand a sign-off when all you are asked to do is to change the date format on your status report. However, if you get fifty contradictory requests for formatting changes that effectively prevent you from getting your status report out on time – you may well need to wake the change control Cerberus.

All changes need to be documented, but it is useful to separate changes into two categories: those that affect the project's CSSQ (Cost, Scope, Schedule and Quality) and those that don't.

Just remember that an accumulation of tiny, seemingly insignificant changes can affect CSSQ just as much as one big obstacle: if you remain still long enough, piranhas can get you just as surely as sharks.

So your change control process needs to explicitly state that you will consider any variation to the Project Plan as a change, and will respond to it in one of two ways:

- Changes that do not affect CSSQ will be documented in your status report.
- Changes that affect CSSQ will trigger a change control process.

Finally, the change control process needs to explicitly define who has authority to approve a change. Usually, different people have the prerogative to approve changes of a different magnitude or kind. Having it clearly spelled out up front will save you many headaches later.

PITFALL #4 – WHY CAN'T WE ALL JUST GET ALONG?

Your schedule is as tight as a drum; you've defined deliverables until no ambiguities remain; everyone knows what to expect and when. You think you are done? Only for as long as it takes one of the decision-makers to disagree with you. And disagree they will! The Customers will disagree that what you are delivering is what they had in mind "all along." The Stakeholders will disagree that they are not being adversely affected

by the new product or service. Your own Project Sponsor – your purported guardian and protector – will disagree that the budget commitments were actually made for next year's budget.

When something like that happens, you need to be able to appeal to a "higher authority." Unfortunately, if you have not obtained the higher authority's OK, and others' concurrence, to appeal to them well ahead of time, you don't stand a chance.

You have to define, right up front, who will arbitrate when you and your Customer, you and your Stakeholder, and you and your Project Sponsor, have a difference of opinion and cannot negotiate a compromise. And the time to plan for it is early on, when you are still their best friend and you have no active issues at stake.

PITFALL #5 – WE DON'T REALLY NEED TO FOLLOW ALL THESE STEPS, DO WE?

In most PM-immature organizations, as soon as the project enters a phase when some real work needs to get done and real resources applied, the questions start:

- "Do we really need all this methodology junk?"
- "We should just concentrate on what REALLY needs to get done."
- "It's crazy to expect us to create all these deliverables!"
- "We don't have the luxury of making the plans look pretty."
- "Why do we need to do … (fill in any deliverable/process)."
- "We need to produce results – not waste time on 'methodology'."
- "If we produce all this make-work we will not have time to DO anything."
- Etcetera, etcetera, etcetera.

Of course, what these comments betray is a fundamental lack of understanding of what Project Management is all about. Project Management (as well as just basic Management) methodologies were developed, all over the world, in response to crises and disasters that resulted precisely from the kind of seat-of-the-pants approach that the doubters actually advocate. To cure the root cause of this attitude would take massive organizational re-education and PM "conscientiousness raising." Unfortunately, you (the "enlightened" Project Manager) don't have either time or authority for that.

What you can do, though, is to say "No" clearly, articulately and resolutely. No, you will not substitute a vague verbal statement of intent for a thoroughly written scope statement. No, you will not take a promise to "let you have our best people when you need them" instead of a signature on the Project Plan.

But let's be realistic – the pressure may get intense, and you may not have a choice. Your own manager, the Project Sponsor, or an influential Customer, may force your hand into short-changing your deliverables or skipping on your tasks. Your only recourse at that point is documentation. Document the specific risks to the project. Document the fact that a business decision was made to accept those risks.

Just don't become a willing accomplice in jeopardizing your own project. Don't "go along to get along." Resist organizational inertia and stick to your principles.

Frequently Asked Questions

When developing the Project Team, how do you handle different projects competing for the same resources that you have no administrative control over?

In the fight for resources, you have two main allies – your Project Plan and your Project Sponsor. Make sure your Project Plan is well reasoned and detailed enough to specify and justify the number and caliber of resources that your project requires. Then, make sure your Project Sponsor agrees with you (not the least, by signing the Project Plan). Finally, use both to secure the resources the Greater Good of the Project demands. And if you still don't get them – which you may not depending on the priority of competing projects – document that fact, so when the project performance suffers, you have ample justification for the requisite change control.

How much detail should be included in the definition of the deliverables? Should you keep it at a high level until more information is available?

Getting an informed agreement on deliverables ahead of time is one of the most important things you can do to ensure the success of your project. Some of the biggest disconnects that sank many projects before yours involved Customers expecting one thing while the Project Team was developing another.

You should describe the deliverables in excruciating detail. You should dig up examples from other projects and use them to illustrate exactly what will be delivered. If no examples are available, you should prototype the deliverables as closely as possible. And finally, the Customer's signatures must be all over the deliverable descriptions.

Also keep in mind that as the project progresses, the format and/or content of the deliverables may "evolve." Make sure that the Customers are constantly updated as to the latest understanding of what will be delivered! See the "Project Black Box" Pitfall from the Execution and Control phase for more details.

What do you do if the team training determined to be necessary cannot be completed within the required timeframe of the project?

Well, it depends on what "necessary" means and who "determined" it. If you have training as a task in your Project Schedule, and Project Team members really cannot function without it, then you should invoke change control until they either get the training, or learn on the job. On the other hand, if you have people that can teach the tool, on-the-job training may be a very viable option. The bottom line is, your resources must be able to produce the results you expect; if they cannot get to that point because of circumstances beyond your control, you have full right to invoke change control.

What do you do when management is making a poor project decision that you as Project Manager feel will doom the project to failure?

This impasse is most likely to occur when management initiates a change to Project Scope, pulls project resources, or alters Project Schedule. Your best course of action, after failing to persuade them of their folly, is to document your objections, including the analysis of the decision and its impact, alternatives you suggested, and all supporting research in a separate document and refer to it in an issues section of the Project Status Report. Subsequent status reports should track the impact of the decision, as well as projections for the potential of continued degradation if the project continues as is.

The best outcome is that as the project progresses, management realizes the impracticality of the situation, and makes changes to the scope, schedule or budget.